Activity 2.1a
Lab Check-In

Name: _____

Date: _____ Per: _____

Chemists use a variety of glassware in the lab including: beakers, Erlenmeyer flasks, pipets, burets, and graduated cylinders. Some of these are used to hold liquids during experiments (e.g., beakers and flasks). Others are used to measure volumes of liquids (e.g., pipets, burets, graduated cylinders). Usually these containers will be 'graduated', which means they are labeled with regular increments of measurement. While all of them could be used for measuring, the ones with smaller graduations are best. Smaller graduations provide a more precise measurement.

Most liquids, such as water, form a concave meniscus (see Figure 1). The bottom of the meniscus should be read at eye level.

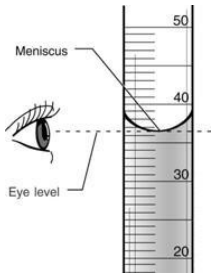

Figure 1

In the graduated cylinder shown in Figure 1, the mL graduations are marked and can be read with certainty (i.e., it is clearly above 36 but below 37). All graduated glassware is read with one estimated digit (i.e., while there are no markings between 36 & 37, it may be estimated that the meniscus falls at approximately 36.7), so this measurement is recorded correctly to the nearest 0.1 mL, with an understood uncertainty of ± 0.1 mL. When recording volumes, always record the measurement to 1 decimal place beyond the place of the graduation (i.e, if the graduations are mL, estimate to 1/10th of a mL, if the graduations are 10^{ths} of a mL, then estimate to 1/100th of a mL).

DIRECTIONS: Check for the presence of the following glassware. Draw one of each piece of lab equipment. In the top row, write the graduation size for each piece of glassware in the space provided.

Glassware Drawer		
beakers (3) Graduations (150 mL) :_____ Graduations (250 mL) :_____ Graduations (400 mL):_____	graduated cylinders (3) Graduations (10 mL) :_____ Graduations (25 mL) :_____ Graduations (100 mL):_____	Erlenmeyer flask (1) Graduations (250 mL) :_____
evaporating dish (1)	watch glass (1)	test tubes(6)
stirring rod (1)	dropper pipet (1)	

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DIRECTIONS: Check for the presence of the following hardware items. Draw each piece of lab equipment.

Hardware Drawer		
utility clamp (1)	iron ring (1)	wire gauze (1)
crucible tongs (1)	beaker tongs (1)	test tube tongs (1)
chemical scoop (1)	test tube brush (1)	forceps (1)

DIRECTIONS: Check for the presence of the following miscellaneous items. Draw each piece of lab equipment.

Miscellaneous		
test tube rack (1)	Bunsen burner (1)	utility stand (1)

1. Which of the glassware items seems best suited for measuring liquid volume? _____
2. Which piece of glassware is most precise? _____
3. How many decimal places should be included when reading the 100 mL graduated cylinder? _____
4. How many decimal places should be included when reading the 10 mL graduated cylinder? _____
5. What steps must be followed before glassware is used in lab? _____
   _____
6. What might a watch glass be used for? _____
7. Which pieces of glassware seem well-suited to work with the watch glass? _____
   _____
8. Why must scratched, cracked or chipped glassware never be used in lab? _____
9. Why are there so many different tongs? _____